

### **ABSTRACT**

5 A system for handling substrates held in a carrier, the system comprising a robot having an articulating robotic arm, a processor for controlling the robotic arm, an end effector attached to a moveable end of the robotic arm, the end effector comprising a blade having a first end and a second end, the blade having an active area for sensing a distance between the end and the substrate, and a passive gripper attached to the first end of the blade and an active gripper attached to the second end of the blade.